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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,261	02/25/2004	Kok-Wai Chang	78026CIP1 (10-479 US CIP)	6949
27975	7590	10/11/2005	EXAMINER LAVARIAS, ARNEL C	
ALLEN, DYER, DOPPELT, MILBRATH & GILCHRIST P.A. 1401 CITRUS CENTER 255 SOUTH ORANGE AVENUE P.O. BOX 3791 ORLANDO, FL 32802-3791			ART UNIT 2872	PAPER NUMBER

DATE MAILED: 10/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/786,261	CHANG ET AL.	
	Examiner	Art Unit	
	Arnel C. Lavarias	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/1/05, 2/25/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 3, 5 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 2, 4, 6 and 8-11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/25/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendments to Claim 7 in the submission dated 8/1/05 are acknowledged and accepted.

Election/Restrictions

2. Applicant's election of Invention I, Species 1 (Claims 2, 4, 6, 8-11) in the reply filed on 8/1/05 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
3. Claims 3, 5, 7 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions and species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 8/1/05.
4. It is additionally noted that, in view of the amendments made to Claim 7 above, Claim 7 is now readable on Invention 1, Species 2, which is drawn to Figure 7.

Priority

5. Acknowledgment is made of applicant's claim for domestic priority under 35 U.S.C. 120.

Drawings

6. The drawings were received on 2/25/04. These drawings are objected to for the following reason(s) as set forth below.

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

Figure 5- Reference numerals 223, 225

Figure 7- Reference numerals 93, 31.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

8. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

Figure 6- Reference numeral 46

Figure 7- Reference numeral 21

Figure 8- Reference numeral 372

Figure 9- Reference numeral 372.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

9. The disclosure is objected to because of the following informalities:

Paragraph 9, line 7- insert 'waveplate' after '45°'

Paragraph 9, line 8- insert 'be' after 'will'

Paragraph 12, line 2- after 'emerge', insert 'from'

Paragraph 13, line 2- delete 'the'

Paragraph 22, line 2; Paragraph 62, line 2- 'or' should read 'of'

Paragraph 36, line 9- insert 'set' after 'cascaded'

Paragraph 59, line 3- 'Figure 7' should read 'Figure 8'.

Appropriate correction is required.

Claim Objections

10. Claims 1-2, 4, 6, 8-11 are objected to because of the following informalities:
- Claims 1-2 include the abbreviation "DoP" in line 15 of Claim 1 and line 7 of Claim 2. The full, unabbreviated word or phrase must be included the first time an abbreviation is used. Claims 2, 4, 6, 8-11 are dependent on Claim 1, and hence inherit the deficiencies of Claim 1. For the purposes of examination, the Examiner has taken 'DoP' to mean 'degree of polarization'.
- Claim 4, line 4- delete 'a' after 'the'
- Appropriate correction is required.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
12. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita et al. (U.S. Patent Application Publication US2002/0141698A1) in view of Ye (U.S. Patent Application Publication US2002/0101634A1).
- Matsushita et al. discloses a polarization dependent depolarizer (See for example Figures 1-5, 9; Paragraphs 0048-0054; Paragraphs 0037-0046) for depolarizing two linear orthogonally polarized incoming beams of light, comprising polarization maintaining input optical fibers (See for example 73, 74 in Figures 1-2) for providing polarized light

and an output optical fiber (See for example 75 in Figures 1-2) for directing a single depolarized beam; a polarization beam combiner (See for example 8 in Figures 1-2) oriented to receive the two linear orthogonal components of light exiting the input optical fibers and for combining the two beams into a single beam; a first high order depolarizing waveplate (See for example 10 in Figures 1-2) having a principle optical axis and having a length along said axis so as to achieve depolarization of a beam propagating entirely along said axis such that the degree of polarization (DoP) of the beam exiting the first high order depolarizing waveplate is less than 20 percent (See Figure 9), whereby different wavelengths of light in said beam will have a different polarization than other wavelengths in said beam, said waveplate having ordinary and extraordinary indices of refraction, a difference of said indices of refraction being at least 0.1 (It is noted that this is inherent to calcite), said first high order depolarizing waveplate being oriented such that orthogonally linear components of the beam received from the polarization beam combiner are at substantially 45 degrees to the optical axis of the first high order depolarizing waveplate, wherein in operation, light exiting the first high order depolarizing waveplate is optically coupled to the output optical fiber. Matsushita et al. lacks a housing for the optical fibers, polarization beam combiner, and high order depolarizing waveplate. However, Ye teaches a conventional optical system for combining orthogonal polarized light beams (See Abstract; Figure 3A) incident from input optical fibers (See 301, 302 in Figure 3A) and routing the combined light to an output fiber (See 303 in Figure 3A). Additionally, the components comprising the optical system are housed in a cylindrical package or housing (See Paragraphs 0018-0021).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the depolarizer of Matsushita et al. further include a housing for the optical fibers, polarization beam combiner, and high order depolarizing waveplate, as taught by Ye, for the purpose of simplifying installation of the depolarizer into an optical system, while protecting the various optical elements from damage.

Allowable Subject Matter

13. Claims 2, 4, 6, 8-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter:

Claim 2 is allowable over the cited art of record for at least the reason that the cited art of record fails to teach or reasonably suggest a polarization dependent depolarizer for depolarizing two linear orthogonally polarized incoming beams of light, as generally set forth in Claims 1-2, the depolarizer including, in combination with the features set forth in Claims 1-2, a second high order depolarizing waveplate being disposed within the housing oriented to have its principle axis optically aligned with the first high order depolarizing waveplate to receive an output beam therefrom, in operation, the beam after propagating through the first and second high order depolarizing waveplates having a degree of polarization (DoP) of less than 10%. Claims 4, 6, 8-11 are dependent on Claim 2, and hence are allowable for at least the same reasons Claim 2 is allowable.

Art Unit: 2872

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Arnel C. Lavarias
Patent Examiner
Group Art Unit 2872
10/4/05